$$y' = 0.80[\text{cm}] \cdot \sin\left(\frac{\pi}{3}[\text{cm}^{-1}] \cdot x\right) \cdot \cos\left(40\pi[\text{s}^{-1}] \cdot t\right)$$

a) 2 identiska vågor rör sig åt olika håll.

(16-60) $\Rightarrow$ $2y_m = 0{,}80$ cm $\quad y_m = \underline{0{,}40 \text{ cm}}$

b) $v = \lambda f = \frac{2\pi}{k} \cdot \frac{\omega}{2\pi} = \frac{\omega}{k} = \frac{40 \cdot \pi\,[\text{s}^{-1}]}{\frac{\pi}{3} \cdot 10^{+2}[\text{m}^{-1}]} = \frac{4 \cdot 3}{10} = \underline{1.2 \text{ m/s}}$

c) en nod varje $\frac{\lambda}{2} = \frac{2\pi}{k} \cdot \frac{1}{2} = \frac{\pi}{k} = \frac{\pi}{\frac{\pi}{3} \cdot 10^2} = \frac{3}{100} = 0{,}030 \text{ m} = \underline{3 \text{ cm}}$

d) $u(x,t) = \frac{\partial y'}{\partial t} = 0.80\,[\text{cm}] \cdot \sin\left(\frac{\pi}{3}[\text{cm}^{-1}] \cdot x\right) \cdot 40 \cdot \pi\,[\text{s}^{-1}](-)\sin(40\pi t)$

$u(2.1[\text{cm}], 0{,}50[\text{s}]) = 0.80 \cdot 10^{-2}[\text{m}] \cdot \sin\left(\frac{\pi}{3} \cdot 2.1\right) \cdot 40 \cdot \pi\,[\text{s}^{-1}](-) \cdot \sin(40\pi \cdot 0.5)$

$= 2.0 \cdot 10^{-15} \text{ m/s} \quad \underline{\approx 0}$